

CLAIMS

What is claimed is:

1. A processor readable medium storing at least command within and conforming to a command instruction set for a packet data modification processor,
the command instruction set having a format in which a packet address, if present, is specified in terms of a first portion representing an encapsulated layer of the packet and a second portion representing a location within that encapsulated layer; and
10 the at least one command specifies deriving at least a portion of a first packet from data taken from a second packet or the command.
2. The processor readable medium of claim 1 wherein the at least one command specifies forming the at least a portion of the first packet from data taken without modification from the second packet or the command.
- 15 3. The processor readable medium of claim 1 wherein the at least one command specifies forming the at least a portion of the first packet from data taken from the second packet or the command and then modified through one or more modifications.
4. The processor readable medium of claim 3 wherein the one or more modifications comprises masking the data with a mask.
- 20 5. The processor readable medium of claim 3 wherein the one or more modifications comprises incrementing the data.
6. The processor readable medium of claim 3 wherein the one or more modifications comprises decrementing the data.
- 25 7. The processor readable medium of claim 3 wherein the one or more modifications comprises one or more arithmetic operations.
8. The processor readable medium of claim 3 wherein the one or more modifications comprises one or more logical operations.
9. The processor readable medium of claim 3 wherein the one or more modifications comprises deleting a portion of the data.

10. The processor readable medium of claim 2 wherein the at least one command specifies inserting the unmodified data into the first packet without overwriting existing packet data.
11. The processor readable medium of claim 2 wherein the at least one command 5 specifies replacing existing data in the first packet with the unmodified data.
12. The processor readable medium of claim 3 wherein the at least one command specifies inserting the data as modified into the first packet without overwriting existing packet data.
13. The processor readable medium of claim 3 wherein the at least one command 10 specifies replacing existing data in the first packet with the unmodified data.
14. The processor readable medium of claim 1 wherein the first and second packets are the same.
15. The processor readable medium of claim 1 wherein the first and second packets are different.
16. The processor readable medium of claim 1 wherein the at least one command 15 is a TTL decrement command.
17. The processor readable medium of claim 1 wherein the at least one command is a TC increment command.
18. The processor readable medium of claim 1 wherein the at least one command 20 is a macro.
19. The processor readable medium of claim 18 wherein the macro is a replace MAC DA/replace MAC SA/replace VLAN macro.
20. The processor readable medium of claim 18 wherein the macro is a replace MAC DA/replace MAC SA/strip VLAN macro.
25. 21. The processor readable medium of claim 2 wherein the unmodified data forms a fragment of the first packet.
22. The processor readable medium of claim 21 wherein the fragment has a predetermined granularity.
23. The processor readable medium of claim 3 wherein the data as modified forms 30 a fragment of the first packet.

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24. The processor readable medium of claim 23 wherein the fragment has a predetermined granularity.
25. The processor readable medium of claim 21 wherein the fragment is one of several fragments forming the first packet.
- 5 26. The processor readable medium of claim 23 wherein the fragment is one of several fragments forming the first packet.